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# MIGRANT NETWORKS AND MIGRANT INTENTIONS TO RETURN

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## **Abstract**

Social ties are potentially an important determinant of migrants' intention to return to their home country, and yet this topic has not been addressed in the existing economics literature on international migration. This study examines the absolute and relative importance of migrant social networks both at destination and at origin. We base our research on experimental data from Batista and Narciso (2013)<sup>1</sup>. By defining networks according to different characteristics of their members and migrant return intentions with respect to three different time horizons, we are able to dissect the network effect into its components. After controlling for unobserved heterogeneity and reverse causality biases we find that network at home seems to be the most important determinant of the migrant's intention to return home within five and ten years.

**Keywords:** International migration, Return migration, Return intentions, Social networks.

### **1. Introduction**

According to the most recent OECD International Migration Outlook (2015), the level of legal permanent immigration to OECD countries summed 4.3 million of individuals in 2014. Among these, 1 million per year entered the EU, matching in this way the inflow to the USA. At the same time, the yearly figures for foreign-born leaving an OECD country are substantial and can range from 20% to 75% of the immigrant stock (OECD, 2008). Furthermore, between 20% and 50% of the inflow will return to the country of origin after five years from the arrival (Dustmann, Görlach; 2015). In the case of Ireland, among those

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<sup>1</sup> The data consists in a representative sample of 1500 immigrants living in the Great Dublin Area, Dublin, Ireland

immigrated between 1993 and 1998, 60.4% returned to their home country after five years (OECD, 2008).

The relevance of international migration is not just a recent phenomenon. In fact, it has been an object of study under many lenses. A great deal of the recent economics research on international migration has focused on explaining the determinants of actual migration patterns. (See Borjas, Bratsberg (1996), Bertoli et al. (2013) and McKenzie et al. (2014)). Yet, very few studies undertook the study of migratory intentions (as opposed to actual migratory movements) and the formation process of such migration intention decisions.

Studying the migrant intention to move across countries, rather than the actual movement, provides a net advantage. If on one hand, migrant intentions are more exposed to changes over time that can be difficult to predict, given the very nature of individual intentions. On the other hand, migrant intentions return a cleaner measure for migration decisions (Dustmann, 2000). Indeed, investment, consumption and labor supply decisions are often conditioned by current intentions rather than by “final realizations” as presented in Dustmann (2000). Moreover, by focusing on migration intentions, we are able to study return migration patterns, which usually implies following the migrants over time for several years. This is an expensive process and often discarded by researchers, which mainly focused their attention on immigration dynamics.<sup>2</sup> A way to elude this unbalance and to shed some more light on the partially unexplored area of return migration comes from focusing on migrants

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<sup>2</sup> A few exceptions are Borjas and Bratsberg (1992), Mesnard (2004), Yang (2006), Batista, McIndoe-Calder and Vicente (2014), Dustmann (1997), and Dustmann and Kirchkamp (2002).

intentions. In this paper, we aim at bringing together these two neglected aspects of the migration experience.

As reported by Dolfin and Genicot (2006), the existing literature widely recognizes the pivotal role of social networks in affecting migratory decisions. In particular, networks facilitate the migration process and enhance it by attracting new immigrants to the host country (Dolfin, Genicot; 2006). Networks affect migration decisions through three channels. They allow information, support in the job market and safety both at destination and at origin (Dolfin, Genicot; 2006). Yet, there is no clear understanding on these underlying mechanisms through which social ties work. Our research question arises naturally from this framework. We want to know: What is the absolute and relative importance of networks at destination and at origin on return migration decisions? In particular, we want to understand whether there is a clear distinction between the effect due to the network at destination and the one attributable to the network at home. Our claim is that the two networks can be depicted as two “pull” factors. We would hence expect the return intention being indirectly proportional to the network size.

In order to analyze the two network effects on the migrant intention to return, we define the intention to return with three different time horizons. This allows us to detect whether the network effect holds in the short, medium and long run. We also study the impact of networks in details, looking closely at the network characteristics in order to better identify the nature of the network effect. We find that the network at origin help explaining the migrant intention to return within five and ten years, while network at destination does not have any influence. A bigger network at home decreases the likelihood of the migrant to

return home. In particular, an increase of one member in the network size at the migrant's country of origin will decrease the likelihood of the migrant to repatriate within the next ten years of almost 20 pp. Our results show that the widespread idea of networks easing migration (see Dolfin, Genicot; 2006) does not hold when we look at return migration. Our study contributes to the existing literature by providing empirical evidence on the formation process of migrant intentions to return. We believe it is a crucial contribution since it adds valuable knowledge on one of the main controversial and pivotal determinants of migration, the social networks.

The remaining part of the article is structured as follows: the next section presents a brief literature review of the existing work on return migration and social networks. The third section is dedicated to the methodology and the fourth section to the descriptive statistics. In the fifth section, we present and discuss the results. In the last section, we draw the conclusions from our study.

## **2. Literature review**

Migration decisions are as complex as the variety of factors they are based on is. Migrating is a decision that is taken at the individual level and it takes into consideration many different elements from the surrounding, as initially proposed by Sjaastad (1962) and Harris and Todaro (1970).

Towards the end of the 80s, researchers started focusing on immigration and its non-random selection processes, both in terms of observable characteristics – such as in Borjas (1987), Borjas and Bratsberg (1996) or Chiquiar and Hanson(2005) – and of unobservable characteristics – such as in Batista (2008) or Bertoli et al. (2013). More recently, the literature

on the determinants of migration has broadened to examine both the origin and destination countries, adopting increasingly more field and natural experiments as sources of exogenous variation – as is exemplary in Yang (2006) and McKenzie et al. (2014).

Yang (2006) examines how households use migration as a technology for saving purposes, and the way this conditions return migration decisions. By examining the impact of an exogenous exchange rate shock on actual return migration, Yang aims at clarifying the determinants of return migration between target earners and life-cycle migrants. He finds that migration allows household-investments back home. Complementary to Yang (2006) contribution, Gibson and McKenzie (2011) find that among highly skilled individuals the life-cycle reasons predominate. According to these results, return migration seems to be determined more by preferences and local amenities than purely by individual gains in income (Dustmann, 2000). In addition, Dustmann and Kirchkamp (2002) show that wages in the host country are indirectly proportional to the optimal migration duration. There is in fact a decreasing marginal benefit of migration. Moreover, they find that the higher the schooling level, the shorter the optimal migration period will be.

Another focal point in the literature has been the role of human capital in the context of international migration. Return migration can be a way to capitalize in the country of origin the skills that have been accumulated during the migration experience. Batista, Lacuesta, and Vicente (2012) provide strong evidences in support of the hypothesis of human capital gains deriving from migration. Their result are consistent with the model developed by Dustmann, Fadlon and Weiss (2010), which is a theoretical model where return migration that responds to human capital accumulation. They show that when the human capital endowment of individuals can be improved more efficiently abroad, their return to the home country will be

delayed. McKenzie and Rapoport (2007) provide further evidence on the human capital gain coming from migration.

When we consider migrant unobservable characteristics, selection into migration is not easy to detect and isolate. McKenzie and Rapoport (2010) study self-selection patterns among Mexican migrants to USA. They find that – depending on whether the migrant lives in a highly or lowly networked community – the probability of migration is directly proportional to the education level in low networks communities and indirectly proportional to education of the migrant in communities that are highly networked. Therefore, a larger network means more incentives to migrate at any educational level. At the same time, by dealing with networks, one has to bear in mind that there is a double selection problem; one is into migration the other into the network. Other studies on individual unobservable characteristics – e.g. the entrepreneurial spirit of the migrant – and the key role they play in return migration are Dostie and Léger (2009) and Batista, McIndoe-Calder and Vicente (2014).

Social networks play a crucial role in affecting migration decisions. A key feature of their formation process is the non-randomness. On the contrary, its development is driven mainly by factors related to ethnicity and geography (Marmaros, Sacerdote 2006; Jackson, Rogers 2007). Notwithstanding, these, together with homophily, can also lead to less integration and cause segregation (Currarini, Jackson, Pin 2009). Furthermore, depending on the level of integration in the job market and on the very nature of the networks themselves, the migration experience can be more or less successful. Consequently, depending on how successful the integration process was, a migrant could consider re-migrating or returning home (Borjas, Bratsberg 1996).

The most comprehensive definition for the several functions served by social networks is the one of mitigating migration costs (Sjaastad, 1962). Yet, there are three potential channels, through which social networks can affect migration decisions.

First, networks catalyze information (Bloch et al. 2008). In addition, by defining the borders of social ties, homophily influences how information is spread within and across the networks (Currarini, Jackson, Pin 2009). Networks can be particularly effective as a source of information on the labor market<sup>3</sup>, providing more and better jobs opportunities and therewith influencing the success of the migration experience (Umblijs, 2012). Further evidences demonstrated how more networks lead to more job opportunities (Munshi 2003).

Second, social networks influence migration decision by determining the migrant integration in the host country. homophily assumes a crucial role with respect to network effect estimation, as it represents a source of correlated unobservables jointly with social norms (Manski, 1993; Cai, de Janvry, A. and E. Sadoulet, 2015). Goel and Lang (2009), prove how already present immigrants in locus facilitate the assimilation of new-coming migrants. At the same time, though, networks can also lead to segregation for particular ethnic enclaves and therefore lead to worse jobs and exclusion (Borjas, 2000).

Third, networks can be an insurance mechanism that helps reducing the risk associated with migrating (Umblijs, 2012). Furthermore, social ties can work as a very peculiar risk management platform based on mutual and self-enforcing informal insurance agreements (Bloch et al., 2008). At the same time, networks at home represent a way to insure

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<sup>3</sup> For a more extended literature revision see Dolfin, Genicot (2006)



too (Batista and Umblijs, 2016). In addition, Fafchamps and Gubert (2007) show that networks facilitate insurance against risk, yet individuals do not choose the composition of their networks in order to maximize the income gain coming from risk sharing

### 3. Methodology

The central hypothesis examined in this paper proposes that migrant's social networks at the destination and at the origin influence the migrant's decision to return to the origin country. More specifically, considered the functions through which networks operate, we expect to see earlier return intentions at a stage where the network at home is small, since with a bigger network at home, the migrant can still benefit from it relying on different contacts in case of need. The same dynamic should hold at destination, where a bigger network implies stronger ties from which the migrant can still benefit.

In order to empirically evaluate this hypothesis, we proceed by building an econometric model that allows us to estimate the nature and the direction of the existing relationships<sup>4</sup>:

$$y_{it} = \alpha_{it} + \beta_{ij}x_{1ij} + \gamma_{ij}x_{2ij} + \delta_i Z_i + \varepsilon_{it}$$

where  $y_{it}$  represents a binary variable summarizing the migrant's intention to return with respect to three different time horizons  $t$ ;  $\alpha_{it}$  is the constant term for the specification.  $x_{1ij}$  and  $x_{2ij}$  are the dependent variables representing networks at destination and at home,

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<sup>4</sup> We also estimate separate models that only consider either the network at destination or the one at origin. By considering one network at the time, these models allow to detect the absolute importance of both networks, although they are not exempt from omitted variable bias. Therefore, the core model of our analysis considers both networks at once.

respectively;<sup>5</sup>  $Z_i$  stands for the vector of controls, while  $\varepsilon_{it}$  represents the stochastic error term of the model.

The model discerns the effects of one network relatively to the other by estimating the existing relationship between the outcome under analysis and both types of network simultaneously.

In our econometric analysis, we include a vector of control variables including observable and unobservable characteristics that might affect the formation of intentions to return<sup>6</sup>. As we further describe in the section dedicated to the descriptive statistics, we take into consideration various definitions for both the dependent and the independent variables.

Since migration intentions can vary with respect to different time frameworks, we are able to better identify the nature of the relationship in analysis by putting it into a time perspective. Thus, we define return intentions according to three different horizons. The first refers to whether the migrant ever intends to return. The second considers the intention of returning within the next five-year period, while the third extends the period to up to ten years, and it is regarded for the purpose of our study as a comprehensive proxy for medium run return decision dynamics. Similarly, it is possible to define networks in several ways<sup>7</sup>.

We define the network as network size. By doing this we can detect the effect of having a

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<sup>5</sup> Index  $j$  represents different definition for the network based on its characteristics

<sup>6</sup> We control for individual characteristics (gender, age, spousal status, religion) and household and network characteristics (number of children, household income, a dummy variable for having sent remittances abroad during last year). We also control for variables that we consider proxies for unobservables as entrepreneurship, ability and risk-aversion (e.g. years spent in Ireland, intention to stay at arrival, years of schooling and a risk-aversion proxy represented by a lottery-game [see Supplementary Appendix]).

<sup>7</sup> For each migrant, we the network at destination includes household members, friends and acquaintances, and contacts already present in Ireland before arrival. The network at home gathers family members and friends.

bigger or smaller network in terms of migrant intentions to return. Therefore, network size can be regarded as a proxy for network effect intensity. Yet, networks are much more complicated structures than simple clusters of contacts. *Ergo*, for a deeper understanding of the mechanic underlying the network effect, we disassemble the network size in some of its main characteristics that we consider key. The compositional analysis we set up takes into account two main aspects that can influence the nature of the existing relationship between the migrant and her network.

A first crucial aspect of this relationship is the effort that the migrant puts in keeping contact with her network members. It is therefore interesting to look at those members that are not part of the family<sup>8</sup> and hence those that the migrant can include or exclude from her network more freely. Keeping in touch with these network members represents an interested choice with respect to the functions that the network exerts, as we discussed in the previous chapter.

A second element that has to be borne in mind when dealing with social ties is how effective the network is in accomplishing one of its main functions, providing job solutions. As we stressed already, jobs represent a pivotal factor in most migrants' decision to stay or leave. Therefore, the choice of restricting the network to just working members follows naturally.

As we mentioned in the previous sections, we provide estimates for three different outcomes and several definitions of networks. We first analyze the relationship between

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<sup>8</sup> We define family in two manners: first, we consider strict family members (parents, spouse, children and siblings). Second, we extend the definition to other relatives.

return intentions and migrant networks within a Linear Probability Model (LPM) based framework.<sup>9</sup> We are interested in knowing the magnitude of the coefficients related to the network effects at *ceteris paribus* condition. The main challenge faced by our econometric strategy comes from endogeneity. As is clear from the literature, dealing with networks often means dealing with endogeneity (Manski, 1993; Carrell, Sacerdote, West, 2013; Baccara, Yariv, 2013). We identify two different sources of endogeneity.

The first source of endogeneity we consider stems from the reverse causality problem, which affects both networks at destination and at home. The simple fact that migrants keep contacts with people in their country of origin may be the result of a wish to go back. The size of the network can depend on the intention of the migrant to return earlier or later in time to its country of origin. The same holds for networks at destination, whereby migrants can choose to include or exclude certain people depending on their wish to be more integrated or to return sooner. This considered, we face the problem that our outcome could influence back the explanatory variables. Consequently, as the LPM approach is not sound against these simultaneity problems, in order to be able to identify the correct network effects, we will follow a two-stage least squares approach.

A second possible source of endogeneity comes from unobserved heterogeneity. To this extent, individual preferences and characteristics play a central role. For instance, a person with strong preferences for local amenities and consumption at the country of origin against the same goods at the country of destination could decide to build a bigger or smaller

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<sup>9</sup> Probit estimations return similar results in terms of sign, magnitudes and significance levels. For details, see Supplementary Appendix.

network at destination in order to hasten or delay the return. Similarly, risk-preferences are important factors of unobserved heterogeneity. More risk-averse individuals will probably rely on stronger social ties and their risk aversion is likely to affect the return intention. Moreover, because some people can have developed more social abilities than others do, they may have bigger networks and their individual characteristics might influence the intention to return as well. Also, as reported in several studies on homophily and discrimination, more educated people may have bigger or more educated networks. This is a further channel whereby networks can influence return purposes and vice versa. As we shortly anticipated, the way we choose to deal with both endogeneity sources, is the Instrumental Variable approach, since it allows us to cope with both problems of reverse causality and unobserved heterogeneity.

In order to be valid, the instrument has to be highly correlated with the instrumented variable while it has to be exogenous with respect to the dependent variable. In other words, it has to be uncorrelated with the error term. For the network at destination, following Woodruff, Zenteno (2007) and McKenzie, Rapoport (2007), we use the stock of immigrants living in the country ten years before. In our case, it corresponds to the stock of migrants present in Ireland in 2000. To build the instrument we use census data from the database on Trends in International Migrant Stock: Migrants by Destination and Origin<sup>10</sup>. Some authors use interaction of past stock of migrants with variables that induce variation at the individual level. For example, McKenzie, Rapoport (2007) use past community networks time the years

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<sup>10</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013), POP/DB/MIG/Stock/Rev.2013.

of education. Another instrument for networks at destination present in the literature is rainfall, which finds a valid rational especially for those countries exposed to strong weather shocks, as in Munshi (2003) or Yang (2006).

On the other hand, there is no clear indication from the literature on what is the most pertinent instrumental variable for the network at home. We decide to instrument the size of the network at home with the average self-reported cost of calling a network member back to their home country. This instrument entails individual variation since it gathers the average self-reported costs that each migrant has to sustain by calling the different network members. As a valid instrument, it is correlated with the network size, since it entails the number of contacts the migrant has. At the same time, it is uncorrelated with the intention to return since it is very unlikely that a detail as the cost of a call will affect such important decision. At our best of knowledge, this is an innovative instrument for social networks.

#### **4. Descriptive statistics and data**

Our study uses the dataset from Batista and Narciso (2013). The sample gathers information at the individual level on about 1,500 household-representative adult immigrants, which live in the Greater Dublin Area. For the purpose of our research, we are going to consider the baseline sample, which counts 1,491 observations that were collected between February 2010 and December 2011.

Migrants from 110 different nationalities are part of this cross-sectional sample. There are six main nationality groups represented: Nigerian 19%, Polish 10%, Indian 6% and South African 5%. On average, the migrants, object of our study, are 32 years old women, which

are not married. The proportion of males within the sample is 45 out of 100, on average. Regarding the household composition, 53% of the respondents do not have children. Among those individuals that do have children, the most common case is of only child. A condition that is mirrored by 18% of the sample.

The migrants in the sample are mainly highly educated individuals, 70% of which pursued a post-secondary or even a university degree. Only 5% of the sample stopped at lower secondary degree or before. Almost half of the sample, 48%, is taking part to a training that is not an English course and 18% is still studying. For the employed individuals, the average monthly individual income is about € 1,200 and the weekly average working-hours amount to 23. Among the interviewed migrants, 37% work in the tertiary sector, while 10% work in the commercial area and another 10% is unemployed.

Only migrants whose year of arrival fell within the time range that covers the period between 2000 and six months before the beginning of the interviewing process in 2011 were considered eligible to be included in the sample. On average, the participants in the study came to Ireland at the age of 27 and at the time of the interview, they had spent five years in Ireland. Moreover, 80% had ever intended to return to their home country, while almost 40% intended to return within five years.

The dataset does not only collect information on migrants and their households but also on their networks' members. We consider as being part of the network at destination, members of the same household of the migrant, people the migrant is in contact with and the contacts the migrant had before migrating to Ireland. In like fashion, the migrant's family members and other people she is in contact with form the network at home. In order to keep

temporal consistency between the dependent and the explanatory variables of our models, we consider current network measures. An interesting piece of information reflects the importance of networks for these migrants. Around 82% of respondents do not have siblings living in Ireland, while 70% have between one and four siblings living in the migrant country of origin.

## **5. Results**

In this section, we present the results of the econometric analysis. We first consider the LPM specification from the model based on both network sizes. Following, the results from the IV approach are shown. Finally, we report the results from the compositional analysis.

At the LPM stage, both networks determines the general intention to return to the home country, with a coefficient of -0.0132 and -0.0274, respectively. Both networks yield negative signs, therefore our claim of the networks acting as two “pull” factors seems to find support. Moreover, the home network has a stronger magnitude. Restricting the time framework to five or ten years, we do not find significant results (See Table 2.a in Appendix).

These estimates were obtained by estimating a linear probability model. For the previously highlighted potential endogeneity reasons, we cannot fully rely on these results and should therefore follow an estimation strategy based on a two-stages least squares approach. After having instrumented the network at destination for the past stock of migrants and the network at home for the average cost calling, we obtain the following results.



After having instrumented it, the size of network at destination does not contribute explaining the intention to return of the migrant any longer. This is equally valid for each of the three time-frameworks. Only the network at home explains the intention to return of the migrant. Looking at the broader definition of return intention, we do not find significances. Now, we find strong and consistent evidences when we restrict the intention to return within the next five and ten years. We can say with a confidence interval of 90% that an increase of one member in the size of the network at home decreases the probability of the migrant to return home within the next five years of 9%. If we consider the migrant intention to return within the next ten years, the coefficient more than doubles. An increase of one member in the home network size decreases the probability of returning to the country of origin of 19.4%, significant at the 1% level. The corresponding joint F – Statistic on the instruments is greater than the threshold value of ten confirming so the validity of our instrument (See Table 2.a in Appendix).

As demonstrated by Umblijs (2012), migrants with more intense networks are more risk-averse, on average. Networks lower the level of uncertainty around migration decisions; therefore, the network effect could be partly due to the different risk-preferences of the migrant. In order to improve our understanding of the detected network effect, we proceed then by allowing the network size to interact with an indicator of migrant risk-aversion<sup>11</sup>.

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<sup>11</sup> This indicator is based on a question from the survey, asking the respondent how much would she have contributed in a hypothetical lottery game (see Supplementary Appendix). The indicator consists in a dummy variable that takes value 0 when the respondent choses to not take part to the game and therefore contributing zero to the lottery and takes value 1 when the respondent contributed with a positive value.

Interestingly, results show that the none of the networks explains the general intention to return of the migrant at the IV stage<sup>12</sup>. The estimates deriving from the interaction with the risk indicator show no significances meaning that the network effect previously detected does not depend on risk-preferences of the migrant.

### **5.1 Compositional analysis**

The nature of the network effects that have been detected so far can be due in part to the choice of using the general network size as dependent variable. Therefore, we need to proceed with a compositional analysis of the migrant networks in order to better identify their role in explaining the intentions to return.

We consider three main categories for a narrower definition of network: highly educated network members, working network members, and non-family member individuals<sup>13</sup>.

We first look at the number of highly educated people defined as number of network members that pursued at least a primary university degree. For the LPM specifications, even after having considered the vector of controls and the fixed effects, the coefficients for the network sizes do not present significant results overall. Also at the IV stage highly educated home network size does not return significant estimates (see Table 3.a). Even though at the LPM stage we find a significant estimate for the interaction term of highly educated network at home with the risk indicator explaining the intention to return, there are no significances

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<sup>12</sup> See Table 2.b in Supplementary Appendix

<sup>13</sup> We further define network size as non-strict family members (parents, spouse, siblings and children), non extended-family members (strict-family plus other relatives). Also, we consider working members and working members that are not living in the same household of the migrant. For further details, see tables in the Supplementary Appendix.

at the IV stage (see Table 3.b). The same conclusion holds for network defined as number of working members, despite the significances at the LPM stage (see Tables 4.a,b). Now, when we consider working members that live outside the migrant household, we find significant estimates at the 10% level for the working network size at origin in explaining the intention to return within the next ten years. Yet, the corresponding joint F – Statistic is not satisfactorily higher than ten. After interacting the coefficients with the risk-aversion proxy, we do not find significant results (see Tables 5.a,b).

We could further dissect the network members in two groups, those that are part of the same family of the migrant and those that are not. The latter group represents the contacts the migrant has to put more effort in keeping contact with. In tables 7.a and 7.b, we consider being part of the family all those members that are considered relatives by the respondent<sup>14</sup>. In Tables 6a,b we consider network as the number of non-family members living outside the migrant household. Although there are no significant findings for the general intention to return, significant evidences for the intention to return within five and ten years are found to be in line with the estimates of the general definition of both networks' sizes. Network at the origin returns negative estimates. Yet, the instruments do not pass the weakness test jointly. After considering the interaction term, no significances are found. Estimates from Tables 7a and 7b are in line with those from Tables 6a,b – both in terms of sign, magnitudes and significances. Therefore, there is no difference between the two definitions of family. Also for these two last cases, after interacting the dependent variables of the model with the risk-aversion indicator there are no significant estimates.

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<sup>14</sup> Ibidem

## 6. Conclusions

In view of the growing relevance that international migration is acquiring in the economics literature as well as in the recent political agendas, with this paper, we studied the importance of social ties in determining migrant intentions to return to the country of origin. The main conclusion we can draw from our study tells us that the social network in the home country has more weight than the network at destination in determining the migrant intention to return. In particular, the relation between the intention to return and the network at home – measured as the number of network members – is indirectly proportional – i.e. the bigger the network, the more the migrant tends to delay her return. We found that one more network member reduces the probability of return within five years by 0.9 percent. In particular, we observe the network effect to be stronger when the migrant considers the intention to return within the next ten years. Being the network at home the one that determines the intention to return, this pattern can be explained as the migrant home network is doomed to decrease over time and therefore the more time pass by the more importance the network will acquire. For all specifications, we find that the home network effect on the return intention at ten years is about double of the one at five years horizon. An increase of one member in the network at home decreases the probability to return within ten years by 19.5 pp. Regarding the social network at destination, there is no strong evidence that this affects the probability of return migration, perhaps partly due to the choice of the instrumental variable.

One way to interpret the results obtained regarding the negative relationship between the network in the country of origin and the probability of return migration is that if the migrant has still many contacts at home, she can prolong her stay overseas without becoming

too worse off in terms of safety provided by the home network. With the time passing by, the home network can decrease in size; therefore the fewer contacts become more crucial, as they represent a way to ensure a safe return back home. This result is similar in spirit to that obtained by Batista and Umblijs (2016) where they find that remittances are used as insurance to keep support of networks in the origin country.

Studying the network effects over several time horizons, we find consistency in the estimates across different definition of networks. After finding negative and significant estimates for the size of the network at origin, trying to disentangle the puzzle around the network effect, we broke the general definition of network size into several components according to three categories: highly educated, working and non-family members individuals. We find that an increase in the home network size – defined as number of members who do not belong to the migrant family – reduces the probability of return within five and ten years by about 20 pp. and 40 pp., respectively. Although the associated regressions still seem to suffer from potential endogeneity problems, these results are in line with the main finding of our study. We further allow the network size to interact with an indicator of risk-aversion. The different estimations do not provide significant results, we can therefore conclude that risk do not bias the home network effect we presented.

“Overall, this paper emphasized the importance of social ties at the country of origin in ensuring a safe and successful return, particularly those outside the family circle.

Keeping in mind the potential effect of networks on return intentions, there are important economic implications, especially for origin countries, - that usually correspond to the less developed countries. Return migration can affect origin countries especially for what

concerns the quality of institutions as presented by Batista and Vicente (2011) or Batista, Seither and Vicente (2016). Rauch and Trindade 2002), show particular benefits for the home country in terms of international trade after return as effect of networking. In addition, Batista, McIndoe-Calder and Vicente (2014) show that there are clear gains in entrepreneurial capacity after migrants return. Therefore, governments of migrant-sending countries may wish to promote these contacts as a way to incentivize return in order to benefit their countries.

### References

- Baccara, Mariagiovanna, and Leeat, Yariv.** 2013. "Homophily in Peer Groups." *American Economic Journal: Microeconomics*, Vol. 5(3): pp. 69-96.
- Batista, Catia.** 2008. "Why Doesn't Labor Flow from Poor to Rich Countries? Micro Evidence from the European Integration Experience". *Oxford Economics Working Paper* no. 402.
- Batista, Catia, and Pedro C., Vicente.** 2011. "Do Migrants Improve Governance at Home? Evidence from a Voting Experiment", *World Bank Economic Review*.
- Batista, Catia, Aitor, Lacuesta, and Pedro C., Vicente.** 2012. "Testing the 'brain gain' hypothesis: Micro evidence from Cape Verde," *Journal of Development Economics*, Elsevier, Vol. 97(1): pp. 32-45.
- Batista, Catia, McIndoe-Calder, Tara and Pedro C, Vicente.** 2014. "Return Migration, Self-Selection and Entrepreneurship in Mozambique," *IZA Discussion Papers* 8195, Institute for the Study of Labor (IZA).
- Batista, Catia and Gaia, Narciso.** 2013. "Migrant Remittances and Information Flows: Evidence from a Field Experiment." *CReAM Discussion Paper Series* 1331, Centre for Research and Analysis of Migration (CReAM), Department of Economics, University College London.
- Batista, Catia, Julia Seither, and Pedro C. Vicente.** 2016. "Migration, Institutions and Social Networks in Mozambique", *NOVAFRICA Working Paper*.
- Batista, Catia, and Janis Umblijs.** 2016. "Do Migrants Send Remittances as a Way of Insurance? Evidence from a Representative Immigrant Survey", *Oxford Economic Papers*, Forthcoming.
- Bertoli, S., Fernández-Huertas Moraga, J. and F., Ortega.** 2013. "Crossing the border: Self-selection, earnings and individual migration decisions," *Journal of Development Economics*, Elsevier, Vol. 101(C), pages 75-91.

- Bloch, Francis, Garance, Genicot and Debraj, Ray.** 2008. "Informal insurance in social networks," *Journal of Economic Theory*, Elsevier, Vol. 143(1): pp. 36-58, November.
- Borjas, George J..** 1987. "Self-selection and the Earnings of Immigrants". *The American Economic Review*, American Economic Association, Vol. 77(4): pp. 531–53.
- Borjas, G. J., and B., Bratsberg.** 1996. "Who leaves? The outmigration of the foreign born." *Review of Economics and Statistics*, Vol. 78(1): pp. 165–176.
- Borjas, G. J.** 2000. "Ethnic enclaves and assimilation." *Swedish Economic Policy Review*, Vol. 2: pp. 89–122.
- Cai, Jing, Alain, De Janvry and Elisabeth, Sadoulet.** 2015. "Social Networks and the Decision to Insure." *American Economic Journal: Applied Economics*, Vol. 7(2): pp. 81-108.
- Carrell, Scott E. and Bruce, Sacerdote.** 2013. "Why Do College Going Interventions Work?," NBER Working Papers 19031, National Bureau of Economic Research, Inc.
- Currarini, Sergio, Matthew O., Jackson, and Paolo, Pin.** 2009. "An Economic Model Of Friendship: Homophily, Minorities, And Segregation." *Econometrica*, Vol. 77(4): pp. 1003–1045, July
- Dolfin, Sarah and Garance, Genicot.** 2010. "What Do Networks Do? The Role of Networks on Migration and "Coyote" Use," *Review of Development Economics*, Wiley Blackwell, Vol. 14(2): pp. 343-359, May.
- Dostie, Benoit and Pierre Thomas, Léger.** 2009. "Self-Selection in Migration and Returns to Unobservable Skills" *Journal of Population Economics*, Vol. 22(4): pp. 1005-1024, January
- Dustmann, Christian.** 2000. "Temporary Migration and Economic Assimilation," *Swedish Economic Policy Review*, Vol. 7: pp. 213-244.
- Dustmann, Christian and Oliver, Kirchkamp.** 2002. "The optimal migration duration and activity choice after re-migration." *Journal of Development Economics*, Elsevier, Vol. 67(2): pp. 351–372, April
- Dustmann, Christian, Itzhak, Fadlon and Yoram, Weiss.** 2010. "Return Migration, Human Capital Accumulation and the Brain Drain," CReAM Discussion Paper Series 1013, Centre for Research and Analysis of Migration (CReAM), Department of Economics, University College London.
- Dustmann, Christian and Joseph-Simon, Görlach.** 2015. "The Economics of Temporary Migrations," CESifo Working Paper Series 5188, CESifo Group Munich.
- Fafchamps, Marcel and Flore, Gubert.** 2007. "The formation of risk sharing networks," *Journal of Development Economics*, Elsevier, Vol. 83(2): pp. 326-350, July.
- Gibson, John and David, McKenzie.** 2011. "The microeconomic determinants of emigration and return migration of the best and brightest: Evidence from the Pacific," *Journal of Development Economics*, Elsevier, Vol. 95(1): pp. 18-29, May.

- Goel, Deepti and Kevin, Lang.** 2009. "Social Ties and the Job Search of Recent Immigrants," NBER Working Papers 15186, National Bureau of Economic Research, Inc.
- Jackson, Matthew O. and Brian W., Rogers.** 2007. "Meeting Strangers and Friends of Friends: How Random Are Social Networks?," *American Economic Review*, American Economic Association, Vol. 97(3), pp. 890-915, June.
- Manski, Charles F..** 1993. "Identification of Endogenous Social Effects: The Reflection Problem" *The Review of Economic Studies*, Vol. 60(3): pp. 531-542, July
- Marmaros, David and Bruce, Sacerdote.** 2006. "How Do Friendships Form?," *The Quarterly Journal of Economics*, Oxford University Press, Vol. 121 (1): pp. 79–119.
- McKenzie, David and Hillel, Rapoport.** 2007. "Network effects and the dynamics of migration and inequality: Theory and evidence from Mexico," *Journal of Development Economics*, Elsevier, Vol. 84(1), pp. 1-24, September.
- McKenzie, David and Hillel Rapoport.** 2010. "Self-Selection Patterns in Mexico-U.S. Migration: The Role of Migration Networks." *Review of Economics and Statistics* Vol. 92(4):811-821.
- McKenzie, David, Caroline Theoharides and Dean Yang.** 2014. "Distortions in the International Migrant Labor Market: Evidence from Filipino Migration and Wage Responses to Destination Country Economic Shocks," *American Economic Journal: Applied Economics*, Vol. 6(2): pp. 49-75, April.
- Munshi, Kaivan.** 2003. "Networks in the Modern Economy: Mexican Migrants in the U. S. Labor Market" *The Quarterly Journal of Economics*, Vol. 118(2): pp. 549-599
- Organisation for Economic Cooperation and Development.** 2008. "International Migration Outlook 2008". OECD Publishing.
- Organisation for Economic Cooperation and Development.** 2015. "International Migration Outlook 2015". OECD Publishing.
- Rauch, J.E., and V. Trindade.** 2002. "Ethnic Chinese Networks in International Trade", *Review of Economics and Statistics*, Vol. 84: pp. 116-130
- Sjaastad, Larry A..** 1962. "The Costs and Returns of Human Migration." *The Journal of Political Economy*, Vol. 70(5): pp. 80-93, October.
- Umblijs, Janis.** 2012. "The Effect of Networks and Risk Attitudes on the Dynamics of Migration", Oxford IMI Working Papers, 54.
- Woodruff, Christopher and Rene, Zenteno.** 2007. "Migration networks and microenterprises in Mexico," *Journal of Development Economics*, Elsevier, Vol. 82(2): pp. 509-528, March.
- Yang, Dean.** 2006. "Why Do Migrants Return to Poor Countries? Evidence from Philippine Migrants' Responses to Exchange Rate Shocks," *The Review of Economics and Statistics*, MIT Press, Vol. 88(4): pp. 715-735, November.



## Appendix

### Main Estimation Results

- Instruments used in IV regression are the same for every specification: stock of migrants living in Ireland in 2000 for network at destination and self-reported average cost of calling home for network at origin.
- Controls are the same for every regression as specified in Footnote 6. For the interaction term with the risk indicator we introduce also the two terms of the interaction separately.
- Robust and clustered standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 2.a Network as size

VARIABLES	LPM	IV
	Intends to return	
Network size dest	-0.0132* (0.00717)	-0.0514 (0.0474)
Network size home	-0.0274* (0.0161)	-0.114 (0.0760)
Constant	0.854*** (0.190)	1.154*** (0.285)
	Intends to return within 5 years	
Network size dest	-0.00403 (0.00759)	0.0127 (0.0427)
Network size home	-0.00245 (0.0127)	-0.0936* (0.0562)
Constant	0.634*** (0.174)	0.761*** (0.241)
	Intends to return within 10 years	
Network size dest	-0.0126 (0.00998)	-0.0145 (0.0526)
Network size home	-0.0268 (0.0170)	-0.194*** (0.0753)
Constant	0.636*** (0.178)	0.929*** (0.304)
Observations	752	681
Controls	YES	YES
FE	YES	YES
F-statistic on excluded instruments		10.526

Table 2.b Network as interaction term between the size and a risk indicator		
VARIABLES	LPM	IV
	Intends to return	
Network size dest*Lottery	0.0369** (0.0146)	-0.377 (0.832)
Network size home*Lottery	-0.0675** (0.0284)	-1.143 (1.665)
Network size dest	-0.0420*** (0.0128)	0.280 (0.648)
Network size home	0.0247 (0.0255)	0.801 (1.204)
Lottery	0.137 (0.0864)	5.222 (7.856)
Constant	0.854*** (0.189)	-2.588 (5.395)
	Intends to return within 5 years	
Network size dest*Lottery	0.0283* (0.0143)	0.0907 (0.483)
Network size home*Lottery	-0.00249 (0.0291)	-0.827 (0.897)
Network size dest	-0.0261** (0.0126)	-0.0763 (0.375)
Network size home	0.000735 (0.0239)	0.617 (0.651)
Lottery	-0.0968 (0.0886)	1.894 (4.333)
Constant	0.728*** (0.181)	-0.586 (2.976)
	Intends to return within 10 years	
Network size dest*Lottery	0.0204 (0.0181)	-0.151 (1.006)
Network size home*Lottery	-0.000794 (0.0299)	-1.752 (2.031)
Network size dest	-0.0285** (0.0137)	0.107 (0.783)
Network size home	-0.0253 (0.0268)	1.265 (1.471)
Lottery	0.00779 (0.102)	5.757 (9.595)
Constant	0.706*** (0.192)	-3.207 (6.592)
Observations	752	681
Controls	YES	YES
FE	YES	YES
F-statistic on excluded instruments		0.242